

บทความปริทัศน์ การทบทวนวรรณกรรม (Review article)

ข้อเสนอแนะระบบการดูแลสุขภาพผู้สูงอายุตำบลแสนสุข ประสพการณ์จากการระบาดของโรคโควิด-19 ทั่วโลก

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บทคัดย่อ

บริบท ในช่วงที่มีการระบาดของโรคโควิด-19 ผู้สูงอายุถือเป็นกลุ่มเสี่ยงต่อการติดเชื้อและเป็นโรครุนแรง ดังนั้นผู้สูงอายุที่ต้องปฏิบัติตามมาตรการเว้นระยะห่าง ลดการออกไปในที่ชุมชน และมักถูกจำกัดการออกไปทำกิจกรรมนอกบ้าน อาจส่งผลต่อความเครียด ปัญหาทางจิตใจ และนำไปสู่ภาวะเปราะบางในผู้สูงอายุได้

วัตถุประสงค์ เพื่อนำเสนอโมเดลของการดูแลสุขภาพผู้สูงอายุรูปแบบใหม่ในเขตตำบลแสนสุขในช่วงระยะเวลา 2 ปี ต่อจากนี้ที่ยังมีการระบาดของโรคโควิด-19

วิธีการศึกษา ทบทวนวรรณกรรมจากหนังสือและบทความต่างๆ ที่เกี่ยวข้อง ร่วมกับข้อมูลจากการสำรวจในชุมชน

ผลการศึกษา การดูแลสุขภาพผู้สูงอายุในช่วงที่มีการระบาดของโรคโควิด-19 มีประเด็นที่ควรคำนึงถึง 4 ประการ ได้แก่ (1) การรักษาให้ผู้สูงอายุคงการมีส่วนร่วมในสังคม (2) การป้องกันภาวะเปราะบางของผู้สูงอายุในชุมชน และการสนับสนุนให้ผู้สูงอายุดูแลสุขภาพของตนเองเป็นประจำ (3) การควบคุมโรคเชิงรุกในชุมชนที่มีผู้สูงอายุที่ต้องการความช่วยเหลือ และ (4) การดูแลสุขภาพจิตของผู้สูงอายุ โมเดลรูปแบบใหม่ที่นำเสนอประกอบด้วยหลักการ 3 ส่วน ได้แก่ (1) การสนับสนุนด้านการดูแลสุขภาพและป้องกันภาวะเปราะบาง (2) การป้องกันและควบคุมโรค และ (3) การดูแลสุขภาพจิตและสังคม

สรุป โมเดลของระบบการดูแลสุขภาพผู้สูงอายุรูปแบบใหม่มีประโยชน์ในการนำไปปรับใช้ในการดูแลสุขภาพผู้สูงอายุในชุมชน ขณะนี้เทศบาลแสนสุขได้นำโมเดลดังกล่าวนี้ไปใช้และวางแผนจะประเมินผลหลังการนำโมเดลไปใช้ต่อไป

คำสำคัญ การดูแลสุขภาพผู้สูงอายุ ผู้สูงอายุ ภาวะเปราะบาง โควิด-19

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A new healthcare system for the elderly in Saensuk sub-district, Chonburi, Thailand: suggestion from the experience of COVID-19 outbreak around the world

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Abstract

Context: During the coronavirus disease 2019 (COVID-19) pandemic, older adults are a high-risk for COVID-19 infection and for developing severe disease. Thus, the elderly should follow the social distancing, including restricting activities outside the home, such as visiting crowded places. Such restrictions for older adults may lead to stress, mental health problem, and even physical health care issues, such as frailty.

Objective: This article aimed to propose a new model for a senior healthcare system in Thailand's Saensuk area during the next 2 years of the COVID-19 outbreak.

Materials and Methods: Review literatures from related books and articles in tandem with data from community survey.

Results: Four key points regarding senior healthcare services during the COVID-19 era are considered (1) maintaining social engagement, (2) preventing frailty among seniors in the community and supporting senior to regularly care for their health, (3) implementing proactive infection control practices in assisted living communities, and (4) promoting older adult mental health. Our new model consists of three main components, namely: Healthcare support and frailty prevention, Infection prevention and control, and Mental health and psychosocial care.

Conclusion: New model for a senior healthcare system has proved to be useful for applying in healthcare services for older adults in the community. At this time, Saensuk municipality is implementing our model and planning to evaluate it after implementation.

Keywords: Senior healthcare system, Older adults, Frailty, COVID-19

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Introduction

Pandemic outbreaks of coronavirus disease 2019 (COVID-19) are associated with higher risk of complications and mortality in older adults likely due to age-related biological changes and the more frequent coexistence co-morbid illness and frailty.¹ Older adults in the 70-80 -year-old age group have a case fatality rate of 8.0%, and in those above age 80 years it rises to 14.8% or even higher than 90% for people on ventilators.² Older adults with multiple co-morbidities and individuals with complex underlying health conditions suffer the severest COVID-19 outcomes.³ Recently, the most common comorbidities observed in all older adults dying with COVID-19 are hypertension and Type 2 Diabetes.⁴ In the community setting, COVID-19 in older adults usually presents as a new-onset fever, dry cough or breathing difficulty. However, frail older adults often also present with atypical symptoms, such as fall, reduced mobility, generalized weakness or delirium.⁵

During the COVID-19 outbreak in each wave, February 2020, January 2021 and April 2021 in Thailand, the lockdown increased the number of senior residents in the assisted living (AL) community, with many AL communities limiting visitors, restricting their outside activities, and requiring older adults to stay at home. This in turn had a negative impact on health, increasing the degree of frailty, with greater subsequent dependency and/or mortality when they exposed to specific stressors. During the peak of COVID-19 outbreak in Thailand

older adults had difficulty in accessing to medical services from overwhelmed hospital systems. Many older adults who suspected or confirmed COVID-19 had to wait for hospital beds that lead to delayed in treatment and unexpected complications. Moreover, older adults experienced barriers in COVID-19 vaccine booking because of inconvenient caused by the online booking platforms. Hence, the COVID-19 vaccine management in Thailand was also problematic due to vaccine shortage and uncertainty of the government's vaccine policy. All of these issues caused further delay in some older adults' vaccination. In this paper, we consider the issues around this negative spiral concerning health impact, specifically in the Saensuk municipality, located in the Chonburi Province, Thailand, 74 kilometers away from the capital city, Bangkok. The Saensuk municipality has established a senior development center since 2019 for integrating local senior healthcare systems. The municipality is equipped with a university hospital, two health care centers, 16 private clinics, 135 medical personnel, and 460 village health volunteers. The municipality has received strong support from universities, several advanced technological companies, the Internet of Things (IoT) City Innovation Center, and the Japan International Cooperation Agency (JICA) to promote smart healthcare systems for older adults.

In the Saensuk municipality, up to a quarter of senior residents have underlying chronic conditions, namely, respectively 29.7%

depression, 20.9% diabetes mellitus, 20% high blood pressure, 20% musculoskeletal diseases, 18.7% dyslipidemia, 9% heart disease, and 1.1% stroke, respectively.^{6,7} Thus, as with older adult populations, they are at a higher risk for being affected by COVID-19. Therefore, a focus has been on how to prevent the 40,000 older adults in the Saensuk area from developing frailty conditions during the time course of the COVID-19 pandemic. Assisted living community in Saensuk Municipality has a prominent point in the community involvement. People in the community have involved in every step ranging from policy making, action planning to organizing all activities in assisted living community. This review builds on the existing guidelines by offering a new model of senior healthcare systems delivery aimed as being implemented during the next two years of the COVID-19 pandemic. The proposed model is developed from an extant review, together with survey findings in the Saensuk municipality, producing a framework which we think may helpfully generalize to other older adult communities. Four key elements concerning older adult care that form a cornerstone of the model are outlined and the survey results are presented.

Four Important Key Elements

We propose to develop a new model by modifying the implementation on health care services for the elderly into four important key elements.

1. Keeping Senior's Social Engagement

In response to COVID-19, the Thai Government have advised older adults to be compliant with a program of social distancing and isolation, with the avoidance of all gatherings of people, including at home, public places and with family and friends. Both social distancing and isolation, whilst reduced the transmission of COVID-19, inadvertently impact on all aspects of older adult health and wellbeing.^{8,9}

The first key point is to maintain older adults' social engagement. A study from China has found that social engagement significantly improved the self-rated health of the elderly and reduced mental distress.¹⁰ Baker and Clark have proposed a holistic framework for assessing the needs of isolated individuals at home and the impact on the overall senior's health during social distancing and self-isolation.¹¹ The risks and needs involve *biological issues* (e.g. personal hygiene, nutrition and hydration, comorbidity impacts, bladder and bowel functions, impact of associated symptoms, and mobility and exercise tolerance), *pharmacological issues* (e.g. access, compliance, renewal of prescribed medication), *psychiatric issues* (e.g. risk factors for mental health problems, available mental health services, signs of new mental health illness, recent loss and bereavement, and impact of low socio-economic status), *social issues* (e.g. adequacy and sustainability of care support, access to family and friends, impact

of changes to normal routine, and access to accurate information and technological skills), and *environmental issues* (e.g. access to private outdoor space, bathroom and kitchen cleanliness, pet management, and adequate whole-house ventilation). Social distancing does not necessarily translate into social disengagement and community healthcare staff may facilitate seniors social contact via telephone calls or Internet-based options (e.g. texting, FaceTime, Skype), especially for residents with cognitive or physical impairment. In addition, staff should engage their family members such as in dropping off special meals at the senior's door or support special events of their family including celebrating anniversaries or birthday.¹²

2. Preventing Frailty and Supporting Seniors to Regularly Care for their Health

Frailty is a state of increased risk. Early determination of frailty status in this population could therefore be helpful to signpost the needs of each individual. The Clinical Frailty Scale (CFS) is a quick and reliable screening tool to determine frailty status for either in-hospital setting or emergency department setting (Table 1).^{13,14} The appropriate cut points of CFS to determine access of older adults to health care have not been studied. However, the pre-COVID studies showed that older adult with a CFS of 5 points has a better recovery from any insults than those with a CFS of 8.¹⁵ For the purpose of preventing frailty in our new model, the older adults with CFS of 3 (managing well) to 5 (living with mild frailty) have been at risk

to worsen their health than the other groups as a result of social distancing and self-isolation. Most importantly, the senior's chronic illness and their other risk factors, such as smoking and social vulnerability, should be evaluated with the CFS assessment, due to the fact that these variables independently correlated to the clinical outcomes.

On March 2020, the World Health Organization suggested that not only older adults but also people with noncommunicable diseases (NCDs) appear to be more susceptible to becoming severely ill with the COVID-19 virus.¹⁷ They launched guidelines and information intended for people with NCDs, indicating that whilst waiting for a vaccine, social distancing and quarantine have been the only effective interventions. In this situation, many NCD older adults in the Saensuk municipality will be in difficulty because their mobility restriction means they cannot refill their medication from hospitals or from Sub-District Health Promotion Hospital. Strict implementation of lockdown and temporary closure of some outpatient facilities may place them at increased risk for poor-controlled NCD because of a lack of continuous medication supplies, diagnostics for follow-up, and failure to sufficiently intensify the medical therapy. A study in China shows that 24.9% of patients (48/193) with a severe COVID-19 also possessed diabetes, with poorer survival than patients without this illness (HR was 1.53; 95% CI 1.02 to 2.30; $p = 0.04$).¹⁸ These problems may be alleviated by their family

members, community health workers, and village health volunteers who can contribute towards the doorstep delivery of essential drugs for NCD management to the vulnerable senior residents.

Table 1. The Clinical Frailty Scale (CFS).¹⁶

1. Very fit – People who are robust, active, energetic and motivated. They tend to exercise regularly and are among the fittest for their age.	2. Fit – People who have no active disease symptoms but they are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.
3. Managing Well – People whose medical problems are well controlled, even if occasionally symptomatic, but often are not regularly active beyond routine walking.	4. Living with very mild frailty – Previously “vulnerable”, this category marks early transition from complete independence. While not dependent on others for daily help, often symptoms limit activities. A common complaint is being “slowed up” and/or being tired during the day.
5. Living with mild frailty – People who often have more evident slowing, and need help with high order instrumental activities of daily living (finances, transportation, heavy housework). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.	6. Living with moderately frailty – People who need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.
7. Living with severe frailty – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months)	8. Living with very severe frailty – Completely dependent for personal care and approaching end of life. Typically, they could not recover even from a minor illness.
9. Terminally ill – Approaching the end of life. This category applies to people with a life expectancy < 6 months, who are not otherwise evidently frail.	

One solution to this challenge is to use telemedicine, replacing face-to-face medical consultations, concerning either urgent or non-urgent care visits. In Poland, the telephone-based advice provides 26% senior patients with type 2 diabetes consultations, concerning modifications of their diabetic drugs or dose

using e-prescription.¹⁹ Video technology has also been used to promote physical exercise. For example, in Japan, the group exercises had been stopped during the main COVID-19 outbreak, but they were then continued by using at-home workout videos.²⁰ However, it has been shown that senior

residents are less capable of engaging with telemedicine than working adults.²¹ Training in the use of a telemedicine platform by using phone- or video-based communication to the older adult family members and village health volunteers can potentially ameliorated this difficulty and improve access to senior healthcare. Health promotion with nutrient-enriched foods and home-based physical activity may also enhance elderly immunity. Supplementation of vitamin D, vitamin E, and multi-nutrient can decrease the incidence and severity of acute respiratory tract infections.^{22,23} It is therefore important to advise senior residents to avoid unhealthy foods, and their family members should also ensure their parents receiving daily nutrient-enriched foods. It is of note that senior NCD patients may gain weight due to increased food consumption and more physical inactivity during home confinement. One study in Brazil showed that physical inactivity resulted in deterioration of cardiovascular function even after a shorter period of self-isolation (1-4 weeks).²⁴ Home-based physical activity has a benefit to reduce the cardiovascular events. Community healthcare staff should prepare home-based physical activity programs tailored to specific senior residents. They should also advise senior's family members how to support and care for their seniors during follow-up programs.

3. Proactive Infection Control Practices in Assisted Living Communities

The next key point emphasizes proactive infection control practices in AL communities. A useful summary of such practices has been produced by the International Association for Gerontology and Geriatrics, for the Asia/Oceania (IAGG-AO) region, who released basic guidance to prevent COVID-19 in older adults, in which it suggests 'C for Catnap (enough sleep), O for Optimistic, V for Vigor (indoor physical activities), I for Intake (nutrition and oral hygiene), D for Distancing, I for Increase social support via information technology (IT), A for Administer routine medicine, G for Get adequate morning sunlight, G for Go to emergency room or call emergency services in case of serious concerns, A for Actively hand washing, and O for Order food and medical supplies via your family/caregivers/online.²⁵

In addition, a community healthcare team should establish community guidelines to prevent the spread of the COVID-19 in relation to older adults. These should cover all three categories: Individual, Long-term care facility and Ambulatory care service.²⁶ For individual protection, a senior and their family members should frequently wash their hands, avoid touching T-zone of their faces (eyes, nose, and mouth), keep social distancing at least one meter while staying at home, and wear a face mask when going outside. For longterm care facilities, the recommendations for COVID-19 infection control practices have three main domains, as shown in Table 2.

For an ambulatory care service, community healthcare staff should see patients by using tele-visit except urgent visits. If they must provide healthcare services for a senior with urgent condition, they should also follow the COVID-19 infection control and surveillance as shown in Table 2.

Table 2 Recommendations of COVID-19 Infection Control Practices For The Longterm Care Facility.²⁶

Groups	COVID-19 Infection Control Practices
Organization level	<ul style="list-style-type: none"> - training all health care workers on the use of personal protective equipment (PPE) with donning and doffing procedures - stock and maintain supplies of PPE, including surgical and N95 masks, isolation gowns, face shields, goggles, and non-sterile gloves - encourage the use of telemedicine services - stop visitation of all nonessential visitors including family members - screen every person including all facility staff before entering the facility - find out the staff who have had any contact with a COVID-19-positive (or suspected) person - avoiding the employment of temporary or per diem staff and keep a list of staff who work in any other facility or per diem - limit the staff to work on the same floor or same residents every day - review all medicines and discontinue unnecessary medicines - avoiding use of nebulizers and devices that can aerosolize virus (e.g., CPAP) - active monitoring for potentially infected patients and strictly implements the infection control practices
Health care workers	<ul style="list-style-type: none"> - avoiding coming to the facility with respiratory symptoms or with elevated temperature - strict hand hygiene with hand wash for every person entering the facility (alcohol based or 20 s with soap and water) - do not shake hands, touch, or hug residents or other staff members - follow current guidelines for protective equipment recommended for close contact with residents
Residents of the facility	<ul style="list-style-type: none"> - avoiding group dining, group therapies, and recreational activities involving large groups - halt all visitors, including close family members - postpone non-urgent outpatient visits - use of masks when leave their rooms - isolate those with confirmed or suspected of SARS-CoV-2 infection whether symptomatic or not

4. Supporting Senior Mental Health

The last key point involves supporting senior mental health and specialized care of older adults with cognitive impairment, dementia, and/or neuropsychiatric disorders. It is evident that older adults and also their caregivers are the often more severely affected by the consequences of crises and natural disasters. Increased social isolation and loneliness and cognitive deterioration are particularly dramatic because AL people with dementia or even those with mild cognitive impairment (MCI) are more vulnerable to functional decline.^{27,28} Hence, older adults with dementia may have limited and inadequate access to relevant information and difficulties in management of protection and infection-control protocols. That is, older people with dementia are not only less able to adhere to social distancing recommendations than persons without dementia, but attempting to isolate them may in fact be problematic. For example, forcing people with confusion to remain in their rooms or to cover one's mouth and nose with a face mask to limit exposure is more likely to induce agitation and other undesirable emotions and behaviors. Some older adults with MCI may be unwilling or unable to comply because of depression or apathy.²⁷ Therefore, complex instructions concerning self-isolation or handwashing should be avoided, and instructions used should be kept accessible and be repeatable. Further, older adults with dementia may have swallowing difficulties, which could lead them

at elevated risk of developing chest infections and dehydration. A swallowing assessment is accordingly and possibly helpful. In addition, older people with dementia have a higher hospitalization rates than those without dementia, even when comparing those who have underlying health conditions including delirium, diabetes, chronic kidney disease, and chronic obstructive pulmonary disease.²⁹ This is due to the fact that older adults with dementia are at greater risk and typically unable to communicate their medical symptoms and difficulties; thus, it is imperative to remain especially vigilant for medical signs of possible COVID-19 in older adults with dementia.

AL communities in the Saensuk area cater more for residents with dementia, or to those who have psychiatric illnesses or with functional impairment. According to several recommendations for dementia care during COVID-19, it is suggested that in addition to physical protection from viral infection, mental health and psychosocial support should be also delivered.³⁰

- Mental health professionals including village health volunteers should collaborate to deliver mental health care for older adults living with dementia.

- Self-help guidance is a key for reducing stress and emotional problems. For example, this might include relaxation, meditation exercise, music-based intervention, mobile game-based activities, all of which could be delivered through electronic media. All activities should be tailored to meet the

individual needs of older adults with dementia in order to ensure all arranged activities are engaging and pleasurable.

- Service teams can support psychological and behavioral management through telephone hotlines or online consultation for caregivers at home and in nursing homes.

- All activities delivered at home by family caregiver to maintain cognitive functions among people with dementia socially isolating during COVID-19 pandemic may also have positive effects on cognition and mood.

The Saensuk Community Survey of Older Adults and Caregivers

As part of the Saensuk initiative we performed a survey during the home visitation programs of 100 older adults caregivers about the requirement of healthcare services for older adults in Saensuk municipality during the 2020 the peak of epidemic in Saensuk municipality. The findings support key messages from the model developed presented in this paper. 72 % of respondents were older adults, 15% were non-family member caregivers and 11% were family member caregivers. The respondents reported that 33% had body weight changes

(weight gain or loss), 26% had missed the chance to engage in leisure activities with their friends or families and 18% had were unable to exercise. 93 % of respondents expressed interest in healthcare service during COVID-19 pandemic. Among these, 55% were interested in health promotion activities (e.g. exercises, nutrition education, medication in daily use, health check-up), 52% interested in requesting assistance equipment for emergency medical service, 40% interested in senior school programs and leisure activities and 26% interested in home-based physical therapy and senior care program.

The main findings from the survey were used to create the model of senior healthcare system in Saensuk municipality (Figure 1). The model consists of three components from the key points outline earlier in this paper, namely: (1) preventing frailty and supporting healthcare, (2) infection prevention and control, and (3) promoting mental health and psychosocial care. The aim is to utilize and incorporate IT to help with activities, team communication and data management. Finally, the model will be established in the Saensuk municipality with a plan to evaluate the effectiveness of the model in further research.

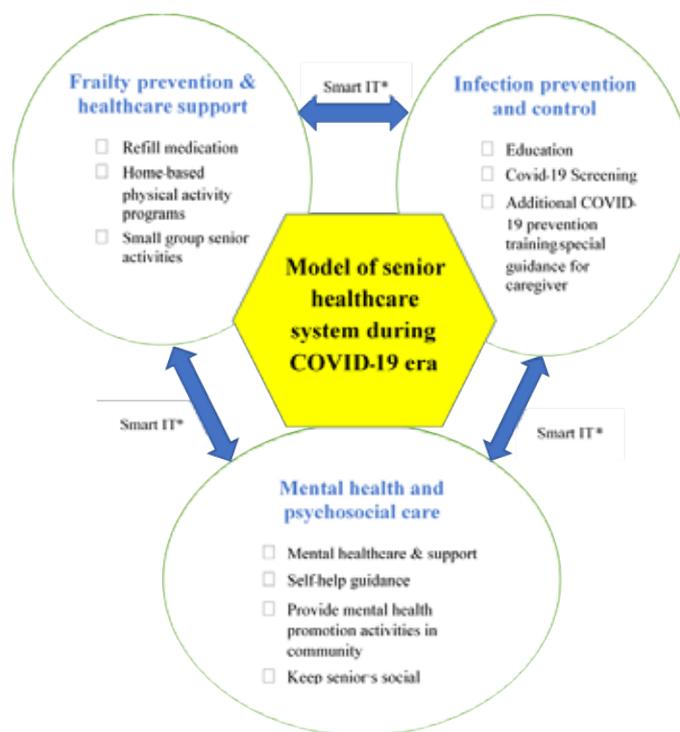


Figure 1 The Model of Senior Healthcare System in Saensuk municipality.

*Smart IT means IT using for activities, team communication and data management

Conclusion

In summary, we propose a model of senior healthcare system in the Saensuk municipality and this model taking into account the current literature and the local survey. The senior healthcare system considers three important aspects of care, that are, frailty prevention and healthcare support, infection prevention and control, and promoting mental health and psychosocial care.

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